REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 3-14, 19 and 20 are now present in the application. The abstract has been amended. Claims 19 and 20 have been added. Claims 1, 2 and 15-18 have been cancelled. Claims 3, 5, 7, 9, 11, 13, 19 and 20 are independent. Reconsideration of this application, as amended, is respectfully requested.

Allowable Subject Matter

The Examiner has indicated that claims 3-14 are allowed. Applicants greatly appreciate the indication of allowable subject matter by the Examiner.

Priority Under 35 U.S.C. §119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. §119, and receipt of the certified priority document.

Information Disclosure Citation

Applicants thank the Examiner for considering the references supplied with the Information Disclosure Statement filed on December 3, 2004, and for providing Applicants with an initialed copy of the PTO-1449 form filed therewith.

Drawings

Applicants thank the Examiner for accepting the formal drawings of the instant application.

Specification

The abstract has been amended to remove the presence of minor informalities. Applicants respectfully submit that no new matter is entered. Entry of the above amendments to the abstract is earnestly solicited.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 2 and 15-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Inoue, U.S. Patent No. 6,005,325, or Inoue, U.S. Patent No. 6,140,738. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Since claims 1, 2 and 15-18 have been cancelled, Applicants respectfully submit that this rejection has been obviated and/or rendered moot. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 102 are respectfully requested.

Additional Claims

Claims 19 and 20 have been added for the Examiner's consideration.

Applicant respectfully submits that the combinations of elements and steps as set forth in new independent claims 19 and 20 are not disclosed or suggested by the references relied on by the Examiner.

Claim 19

Independent claim 19 recites a combination of elements including "optimal Euler angles of the langasite are $\phi = 10^\circ$, $\theta = 23.6^\circ$ and $\psi = 78.8^\circ$ such that a power flow angle and a first order temperature coefficient of delay are substantially zero (0)."

Inoue '325 and Inoue '738 disclose the range of Euler angles (ϕ, θ, and ψ) that ϕ is in a range of $5^\circ \leq \phi \leq 15^\circ$, θ is in a range of $0^\circ \leq \theta \leq 25^\circ$ and ψ is in a range of $70^\circ \leq \psi \leq 90^\circ$, or that ϕ is in a range of $15^\circ \leq \phi \leq 25^\circ$, θ is in a range of $0^\circ \leq \theta \leq 25^\circ$ and ψ is in a range of $60^\circ \leq \psi \leq 80^\circ$. (See Inoue '325, col. 4, lines 35-44, 62-67, and col. 5, lines 1-3. See also Inoue '738, col. 4, lines 41-49 and col. 5, lines 1-10.) However, Inoue '325 and Inoue '738 nowhere disclose that the optimal Euler angles of the langasite are $\phi = 10^\circ$, $\theta = 23.6^\circ$ and $\psi = 78.8^\circ$ as recited in original claim 2 (now in claim 19.) When the Euler angles of the langasite are set to be $\phi = 10^\circ$, $\theta = 23.6^\circ$ and $\psi = 78.8^\circ$ as recited in claim 19, the power flow angle and the first order temperature coefficient of delay are substantially zero (0), thereby providing better performance (see page 10, lines 30-35; page 12, lines 11-13; see also FIGs. 4 and 5). This feature is clearly absent from Inoue '325 and Inoue '738.

Unlike the present invention, Inoue '325 and Inoue '738 simply provide a range of the Euler angles (ϕ, θ, and ψ) without disclosing the optimal Euler angles as recited in claim 19. By

simply picking a combination of specific Euler angles (ϕ, θ, and ψ) from the range disclosed in Inoue '325 and Inoue '738, the power flow angle and the first order temperature coefficient of delay will not be substantially zero (0), and, therefore, the langasite substrate cannot provide better performance like the present invention. Accordingly, Inoue '325 and Inoue '738 fail to teach "optimal Euler angles of the langasite are $\phi = 10^\circ$, $\theta = 23.6^\circ$ and $\psi = 78.8^\circ$ such that a power flow angle and a first order temperature coefficient of delay are substantially zero (0)" as recited in independent claim 19.

Claim 20

Independent claim 20 recites a combination of steps including "wherein the single crystal substrate is one of a langasite substrate, a quartz substrate and a lithium tantalite substrate, when the single crystal substrate is the langasite substrate, selecting the range of the ϕ, θ, and ψ to be either that $\phi = 10^\circ$, $\theta = 23.6^\circ$ and $\psi = 78.8^\circ$ such that a power flow angle and a first order temperature coefficient of delay are substantially zero (0), or that ϕ is 0°, θ is in a range of $12^\circ \leq \theta \leq 17^\circ$, and ψ is in a range of $73^\circ \leq \psi \leq 78^\circ$", "when the single crystal substrate is the quartz substrate, selecting the range of the ϕ, θ, and ψ to be either that ϕ is in a range of $-5^\circ \leq \phi \leq +5^\circ$, θ is in a range of $60^\circ \leq \theta \leq 80^\circ$ and ψ is in a range of $-5^\circ \leq \psi \leq +5^\circ$, or that ϕ is 0°, θ is in a range of $17^\circ \leq \theta \leq 23^\circ$ and ψ is in a range of $10^\circ \leq \psi \leq 20^\circ$" and "when the single crystal substrate is the lithium tantalite substrate, selecting the range of the ϕ, θ, and ψ to be either that ϕ is in a range of $-5^\circ \leq \phi \leq +5^\circ$, θ is in a range of $70^\circ \leq \theta \leq 90^\circ$ and ψ is in a range of $85^\circ \leq \psi \leq 95^\circ$, or that ϕ is in a range of $-5^\circ \leq \phi \leq +5^\circ$, θ is in a range of $160^\circ \leq \theta \leq 180^\circ$ and ψ is in a range of $85^\circ \leq \psi \leq 95^\circ$"

The Examiner has correctly acknowledged that Inoue '325 and Inoue '738 fail to teach the range of the Euler angles (ϕ, θ, and ψ) for the langasite substrate, the quartz substrate and the lithium tantalate substrate as recited in claims 3, 5, 7, 9, 11 and 13. In addition, as mentioned, Inoue '325 and Inoue '738 also fail to teach the optimal Euler angles of the langasite substrate as recited in claim 2. Therefore, Inoue '325 and Inoue '738 also fail to teach selecting one of the ranges of the Euler angles recited in original claims 2, 3, 5, 7, 9, 11 and 13, which are now incorporated in claim 20.

Favorable consideration and allowance of claims 19 and 20 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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